STATE OF CALIFORNIA
ENERGY RESOURCES CONSERVATION
AND DEVELOPMENT COMMISSION

Guidebook of California	)	Docket No. 06-NSHP-1
New Solar Homes Partnership	)	

COMMENTS OF POWERLIGHT ON THE DRAFT NEW SOLAR HOME PARTNERSHIP GUIDEBOOK

POWERLIGHT®

Thanks for the opportunity to weigh in on the structure of the New Solar Home Partnership (NSHP). PowerLight considers the CEC's efforts and support under the NSHP a critical and major step towards mainstreaming clean, renewable solar electric power in the United States.

Comments and recommendations below are made in reference to Sections II, III and IV and Appendix 3 and 4 in the Draft NSHP Guidebook. The recommendations are aimed at heightening the adoption of PV, and achieving the CEC's goals.

II. Program Eligibility Requirements

B. Residential Building Energy Efficiency.

Comment: The program requires that any builder applying for an incentive under the NSHP exceed Title 24 by at least 15% (under Tier I). Most of the builders that invest in solar on new homes also "voluntarily" include heightened energy efficiency to improve the savings and quality to their offering to their customers. A value that solar brings to the marketplace is a heightened interest in energy efficiency (EE), in that when investing in PV systems it is compelling to consider energy consumption. In order to promote their investment in solar to prospective buyers, builders need to present savings. This has been a success largely due to the voluntary nature of the energy efficient investment. Builders reaction to an added requirement to Title 24 compliance will be perceived as burdensome, and will discourage a percentage of builders from moving forward with solar home projects. This is particularly true for communities where the builder's design has been completed prior to consideration of solar. The CEC is limiting the success of solar on new homes by adding this requirement, and potentially limiting the long-term success of bringing builders on board to the NSHP program.

Recommendation: Have Tier I simply be a code compliant home. Maintain a Tier II providing a financial incentive for heightened energy efficiency.

III. Incentive Structure

A. Incentive Amount

Comment 1: The requirements under NSHP are more stringent than the ERP. Although PowerLight agrees with *most* of the added requirements (as we feel they will benefit our industry by ensuring higher performance), the added requirements will add significant cost to delivering PV on new homes, particularly in the first couple of years of the NSHP.

As compared with the CEC's existing ERP, the proposed incentives under the NSHP include the following added requirements:

- 10 year warranty (vs. a 5-year warranty under the ERP)

- 3rd Party verification of installation, paid by builder
- A new product certification process
- Administration and calculations associated with incentives under the EPBI (vs. capacity based incentive under the ERP)
- Any home including solar must exceed Title 24 by at least 15%
- High efficacy lighting in all permanent fixtures

Excluding the energy efficiency requirements, we estimate that the above added requirements will increase the cost in the first year by approximately $0.22 per watt according to the following estimates:

	Added Cost per kWp
10 Yr Warranty	$0.125
3rd Party Inspection	$0.064
Product Certification	$0.012
Administrating EPBI	$0.020
Total	$0.221

Comment 2: The Table on Page 9 of the Draft Guidebook showing the incentive levels over time, alongside the capacity levels provide that a total of approximately 400 MW of PV will be installed with a total incentive of approximately $340M. This is approximately $60M less, or 15% less than we understood intended under the California Solar Initiative.

Recommendation. PowerLight recommends that the incentive levels start at $2.60 per watt (CEC-A/C). In addition, the incentives and capacity pools should be modified to reflect the following table (which was put forth at the NSHP working group):

Incentive	Realized Volume (MW)	Resulting Incentive Amount ($M)
$2.60	15	$39
$2.30	18	$41
$2.00	22	$44
$1.75	25	$44
$1.50	30	$45
$1.25	35	$44
$1.00	40	$40
$0.75	50	$38
$0.50	75	$38
$0.25	100	$25
	410	**$397**

B. EPBI Calculation

Comment: The "Reference System" under the EBPI calculation uses Sacramento weather. The selection of Sacramento is random. Sacramento has a higher than average solar resource than California as a whole. This will result in lower incentives on average than the Reference System.

Recommendation: PowerLight recommends using an "average" California weather file in the PV calculator rather than Sacramento's weather file. We recommend all aspects of the Reference System yield a performance under the PV calculator which represent the mean of the expected BIPV system performance for homes throughout California.

IV Reservation Process

Recommendation: If the CEC moves forward with 3rd party administration of NSHP program, PowerLight recommends that the IOUs be considered for the administration of the incentives within their territories. This recommendation is based on the fact the builders and solar providers need to coordinate with the IOUs for interconnection and planning, and the rebate process is a natural extension of the IOUs administration of utility interconnection and planning.

APPENDIX 3.

Section A

Comment: Section A states that BIPV products must follow specific mounting criteria for their IEC 61215 NOCT performance test. These recommendations deviate from the IEC 61215 criteria of 1.0 m/s ± 0.75 and a rejection of wind gusts greater than 4 m/s. Testing has shown that at wind speeds greater than 1.0 m/s wind direction plays a significant role in BIPV module temperature. The new wind gust value was determined by applying a scaling factor equal to the wind speed restriction.

Recommendation: PowerLight recommends the following additions to the criteria:

"Data for determining NOCT is restricted to wind speeds less than 1 m/s."

"Reject all data taken in a 10 minute interval after a wind gust of more than 2.25 m/s"

"There must be a minimum of 40 acceptable data points for determining NOCT"

Comment: Currently, the guidebook uses a performance model for BIPV and a prescriptive model for rack mounts. The advantages of the prescriptive and performance approaches are valid for both technologies and should apply to both technologies. The prescriptive approach greatly shortens a product's time to market and eliminates additional costs. On the other hand, the performance based approach is critical to incentivize innovation and greater efficiency. The following recommendation will eliminate the discrepancy of how the program treats the two technologies:

Recommendation: PowerLight recommends a prescriptive & performance based model for both BIPV and rack mount systems as outlined below:

Prescriptive approach for BIPV
When choosing BIPV from the StandoffHeight drop down menu in the simulator (see Figure 1) a correction factor of +18 should be added to the reported NOCT of the laminate. This menu is currently used to apply an NOCT correction factor to rack mount systems. Rack mount systems with a standoff height of zero inches have a correction factor of +18 applied to their reported NOCT. Testing has shown that typical BIPV product operate at the same temperatures as rack mounts at zero height and should therefore be subject to the same correction factor. PowerLight also recommends that the height of a PV panel mounted above the roof be defined as:

"The minimum clear height of the air space under the PV panel at its lowest point, including any rack structure beneath the panel that exceeds 30% of the module dimension parallel to the roof eave."

Unlike the current definition, this one allows stanchions to be directly mounted to the module without being considered part of the module. In addition, this definition sets limits on the restriction of airflow in the critical path, i.e. directly up the roof. This definition should be visible next to the StandoffHeight dropdown menu of the PV Calculator.

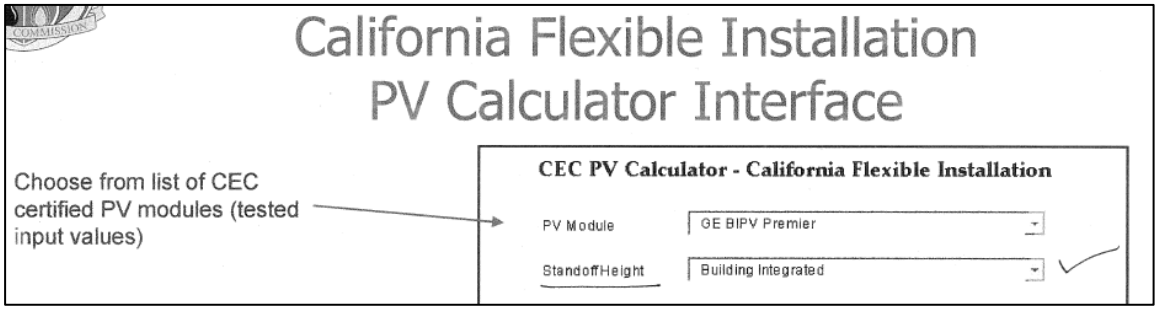


Figure 1

Performance approach for Rack Mounts
The following changes need to be made to include rack mount systems in the performance approach.

I. Note 3 in Appendix 3, Section A should be rewritten to the following: *"Value shall be measured according to IEC Standards 61215 and 61646 Section 10.5.2. When using the performance based approach the NOCT measurements shall be made using the mounting specifications below*"

II. The mounting specification in Appendix 3 Section A should be changed as follows:
   1) The first line should read, "*Module Mounting for performance based NOCT:"*, instead of "*Building Integrated Photovoltaic (BIPV) Modules Mounting for NOCT testing:"*
   2) The acronym "*BIPV*" in the configuration section should change to *"PV"*.

Comment: The requirement of Appendix 3, Section A that "*Manufacturers must insure the power rating of each production module, adjusted to account for preconditioning, is no less than the Module Nameplate Rating"* is a significant deviation from the current rating systems used in the PV industry. PowerLight believes in and supports a more accurate performance rating systems for modules. However, the costs associated with implementing a specific NSHP requirement on the manufacturing level is unknown and could be significant. In addition, a unique NSHP requirement would force manufacturers to pre-allocate product specifically for the NSHP market. This would reduce the manufacturer's ability to re-allocate product, reducing their overall efficiency and flexibility. It is possible that the proposed requirement could make the NSHP market unattractive to some manufacturers.

Recommendation: PowerLight strongly suggests that the CEC push this requirement to the certification level (UL/IEC) and remove it from the NSHP guidebook. This would reduce the cost of implementation and create a level playing field for all manufacturers across all markets.

If the "*no less than nameplate"* requirement remains in the guidebook then PowerLight recommends the following change:

"Manufacturers must insure the ***average power rating of production modules****, adjusted to account for preconditioning, is no less than the Module Nameplate Rating"*

The "*no less than nameplate"* requirement would effectively de-rate all modules to the minimum outliers from production. This would undervalue the true performance capabilities of a system. For this reason, PowerLight recommends the average power rating approach. The average power rating of production modules

can be determined from flash test results conducted at the end of the manufacturing process. Individual modules should be expected to meet the average power requirements within tolerances consistent with established certification agencies standards (i.e. UL or IEC). The CEC or other third party certification agency could audit the production averages from reports generated by the manufacturer.

Comment: Appendix 3 Section A states that PV modules must be UL and IEC certified. Currently, only UL certification is required by the CEC. PowerLight is strongly against the new requirement for additional certification under IEC 61215 (or 61646). IEC certification will duplicate a majority of UL test procedures and add several months and $20,000 to the cost of bringing a product to the NSHP market. However, it is understood that the performance sections of IEC 61215 are necessary for determining the inputs to the PV calculator.

Recommendation: Therefore, PowerLight recommends that only the performance sections of the IEC standard be required. PowerLight recommends the following change to the guidebook:

"Performance. All flat plate photovoltaic modules must be tested and shown by a testing laboratory accredited by the American Association for Laboratory Accreditation to meet the requirements of ***Sections 10.4, 10.5, 10.6 & 10.7 after preconditioning*** *of the International Electrotechnical Commission Standard 61215 Crystalline Silicon Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval Second Edition 2005-04."*

The equivalent change should be made for IEC standard 61646 for thin-film modules.

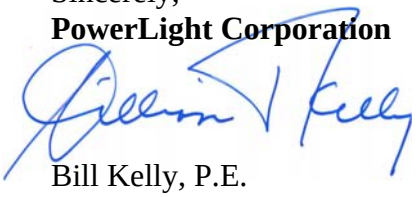
Appendix 4

Comment: PowerLight agrees that 3rd party inspections will be of value to all parties involved in the NSHP. The HERS rating process outlined is extensive, and may be unduly burdensome. The feasibility of the inspection as outlined is not clear and might need to be reevaluated.

Recommendation: PowerLight recommends there be an evaluation period of at least 6-months for the requirements of the HERS inspection.

Thanks again for all your consideration.

Sincerely,
PowerLight Corporation



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